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A New Tobacco Pest

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WEST RALEIGH, N. C.

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AND

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N. C. COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

N. C. AGRICULTURAL EXPERIMENT STATION,

WEST RALEIGH, July 21, 1897.

The tobacco crop of North Carolina is one of great importance, being the third in money value of the crops grown in the State, amounting annually to more than five millions of dollars. The increase in the State in recent years has been marked. In 1879 and 1889 North Carolina stood third in tobacco acreage in the United States and in production, sixth in 1879 and fourth in 1889. In 1896, she ranked second in the United States in acreage and second in production, and the average price per pound of the North Carolina tobacco was much greater than that grown in the other States which rivaled her in production.

It is hoped that the accompanying Bulletin may aid the tobacco planters in maintaining the quality of their product as well as increasing its yield. The present Bulletin forms a part of a comprehensive study of the fungous and insect pests of tobacco, both in the growing state and after it is manufactured. More time being required for elucidating certain parts of the subject, it is thought best to publish at once the part relating to the newly discovered leaf miner in order that tobacco planters may be on their guard against what threatens to become the greatest pest of this crop. The remainder of the Bulletin will be ready later in the present year.

W. A. WITHERS,

Acting Director.

Approved for publication:

ALEX. Q. HOLLADAY, *President.*

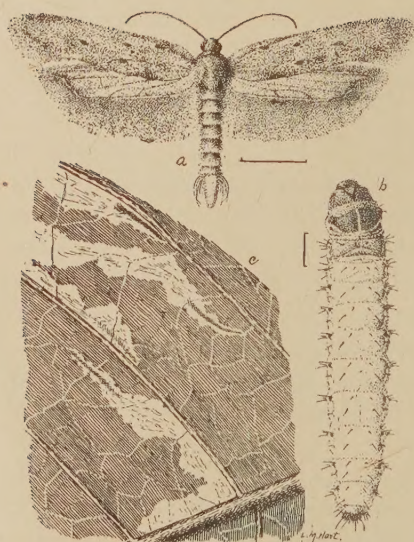


FIG. 1.—TOBACCO LEAF MINER.

a. Mature insect.

b. Caterpillar.

c. A mined leaf.

(NOTE.—The hair lines show the exact size.)

A NEW TOBACCO PEST.

By GERALD McCARTHY, ENTOMOLOGIST.

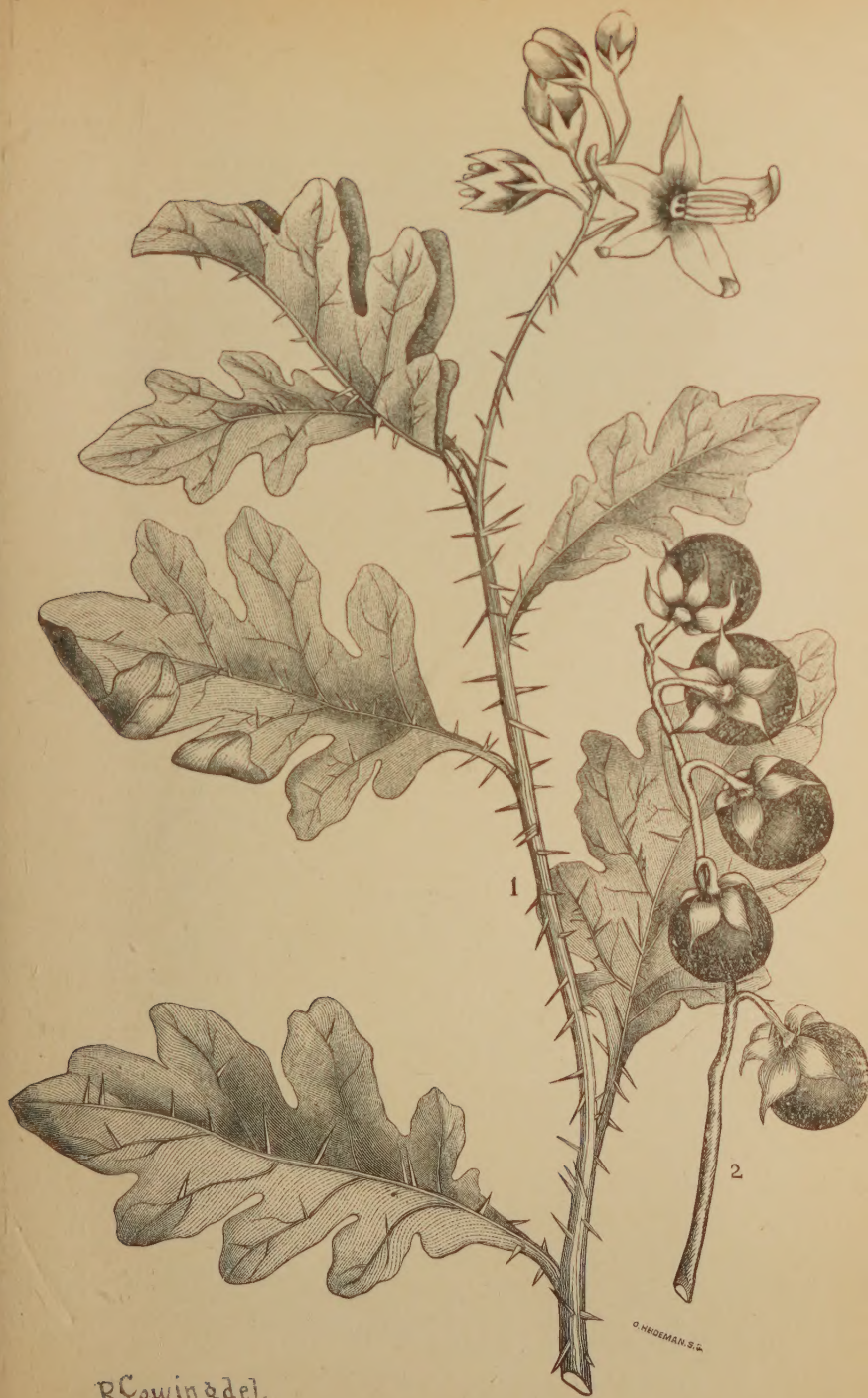
A new insect pest of tobacco has appeared in North Carolina. This insect, *Gelechia picipelis*, Zett., is a native moth whose common food plant has been the perennial solonaceous weed, *Solanum carolinense*, commonly called horse or bull nettle. This weed is rather common on dry, sandy soil from Connecticut southward along the coast to Florida, and westward to the Mississippi. This plant is usually one foot high, with angular-toothed, petiolate leaves, three to five inches long, with straight yellow prickles. Flowers blue or white. The range of the insect is co-extensive with that of its host plant, and includes, as we see, nearly the entire tobacco growing area of the United States. While this insect probably inhabited its present range prior to the coming of the white man, it has never been recorded as a pest of tobacco until the year 1896. So far as present data shows the damage to tobacco is serious only in three townships of one county in North Carolina, and to a large but undetermined district in Florida. The above mentioned county does not lie in the tobacco belt of the State, but in the region chiefly devoted to trucking. This region is also that in which the bull nettle is most common. The damage so far is not considerable, but the people are alarmed for the future. It is well known to economic entomologists that the natural increase of any insect is chiefly regulated by the abundance of its food plants. Insects which subsist upon one or a few species of weeds of waste ground must necessarily lead a very precarious existence, and do well if they hold their numbers from year to year. When such an insect changes its wild food plant for a cultivated species, the relatively almost infinite abundance of the latter causes a parallel increase of the insect, which, soon overflowing its natural boundaries, or the range it occupied before, spreads into all regions where the new host plant is cultivated. This has been the history of the Colorado potato beetle, which originally subsisted upon another solonaceous weed closely related to the bull nettle.

DESCRIPTION OF THE TOBACCO MINER.

Gelechia picipelis, Zett.—General color yellowish gray. Head and chest paler than wings, inclining to cream color. Palpi simple, not exceeding the vertex. Primaries variegated with a few

smoky streaks and a marginal row of minute black dots at base of ciliae. Wing expanse 0.45 to 0.50 inch. Length 0.20 inch. (After Miss M. Murtfeldt, 1881). The insect belongs to the natural order Lepidoptera, sub order of Moths, family of Tineids, of which the more important are the clothes and fur moths and the Angoumois grain moth or "Fly-weevil," *Gelechia (Sitotroga) cerealella*, so destructive to corn and other grains in the crib. The latter species is very closely related to and greatly resembles our tobacco miner.

Remedies: None have been tried as yet. From the nature of the case the treatment must be preventive. The parent moth deposits her eggs within the substance of the leaf or stem of the plant. The resulting caterpillar eats the green matter of the leaf, leaving both skins intact. The skins of the tobacco leaf are oily and able to shed any liquid. They also prevent any powder dusted on the leaf from coming into contact with the enclosed caterpillar. When full grown the caterpillar drops to the ground, spins a small, silky cocoon under leaves or trash of any kind, or even stones or clods, and there remains dormant for a week or ten days, after which period the winged moth issues from the cocoon and begins to lay eggs for the succeeding brood. The number of annual generations is as yet not known, but is probably not less than three nor more than five. The insect is believed to hibernate, in the imago or winged state, beneath trash in the field and about tobacco barns. It may also lie dormant, either as caterpillar or pupa, hidden in the stumps of tobacco or the roots of the bull nettle, but so far no larvæ or pupæ have been found during the winter. The most promising remedy at present is the extirpation of the bull nettle in all tobacco-growing sections, and the prompt plowing under or removal of tobacco stumps as soon as the crop has been gathered. Clean cultivation of the growing crop, with frequent stirring of the soil close up to the plants, will destroy the dormant pupa or cover them so deep that the moth will be unable to find its way to the surface of the ground. A close watch should be kept, and when blotch mines are seen on leaves the enclosed caterpillar may be easily crushed between thumb and finger. The leaves will then soon repair the damage. Trap lights burnt in the field from dusk till 10 P. M. will attract and destroy large numbers of the moth.



R Cowing del.

FIG. 2.—BULL NETTLE, 1. Stem and flowers. 2. Berries.

